

Amendments to the Claims

1. (currently amended) A process for making dispersable surfactant capped nanocrystals of metal oxides which comprises : (a) mixing a solution of a metal cupferron precursor complex of the formula $M^X\text{Cup}_X$, wherein M^X is a metal ion in the oxidation state X selected from the group consisting of elements in Group 2, Group 3 – 12 of the 4th period, Group 3 – 6 of the 5th and 6th period, Group 10 – 12 of the 5th period, Group 12 of the 6th period, ~~Group 13th and 14th~~ Groups 13 to 15, and the Lanthanide and Actinide series of the periodic table, and X is a number between 1 and 4, and Cup is a N-substituted N-nitroso hydroxylamine, with a coordinating surfactant , and (b) heating the mixture at a temperature and for a sufficient period of time to cause thermal decomposition of the $M^X\text{Cup}_X$ precursor and formation of the nanocrystals.
2. (previously presented) The process of Claim 1 wherein the process is conducted in an inert atmosphere.
3. (original) The process of Claim 2 wherein said inert atmosphere is argon or nitrogen gas.
4. (previously presented) The process of Claim 1 wherein said process is conducted in the absence of water, air or oxygen.
5. (original) The process of Claim 1 wherein the mixture is heated to or maintained at a temperature ranging from about 150 °C to about 400 °C.
6. (original) The process of Claim 1 wherein M is Fe .
7. (original) The process of Claim 1 wherein M is Mn .
8. (original) The process of Claim 1 wherein M is Cu .

9. (original) The process of Claim 1 wherein said coordinating surfactant is an organic molecule consisting of a polar headgroup and an apolar group providing stabilization against coagulation and precipitation of particles.
10. (original) The process of Claim 9 wherein said coordinating surfactant is hexadecylamine or trioctylamine.
11. (previously presented) The process of Claim 1 wherein said N-substituted N-nitroso hydroxylamine is N-nitroso-N-phenyl hydroxylamine.
12. (original) The process of Claim 1 wherein M is Fe, Cup is N-nitroso-N-phenyl hydroxylamine, and the coordinating surfactant is hexadecylamine.
13. (currently amended) A process for making dispersable surfactant capped nanocrystals of metal oxides with non-hydroxylated particle surfaces which comprises mixing a solution of a metal cupferron complex of the formula $M^X\text{Cup}_X$, wherein M^X is a metal ion in the oxidation state X selected from the group consisting of elements in Group 2, Group 3 – 12 of the 4th period, Group 3 – 6 of the 5th and 6th period, Group 10 – 12 of the 5th period, Group 12 of the 6th period, ~~Group 13th and 14th~~ Groups 13 to 15, and the Lanthanide and Actinide series of the periodic table, and X is a number between 1 and 4, and Cup is cupferron, into an amine based coordinating surfactant, at a temperature ranging from about 250 °C to about 300 °C, and allowing the reaction to proceed for a period of time sufficient to cause thermal decomposition of said $M^X\text{Cup}_X$, and formation of the nanocrystals.
14. (original) A surfactant capped nanocrystal made in accordance with the process of Claim 1.

15. (currently amended) A process for making soluble surfactant capped nanocrystals of transition metal oxides with non-hydroxylated particle surfaces which comprises injecting a solution of a metal cupferron complex of the formula $M^X\text{Cup}_x$, where x is a number between 1 and 4, wherein M is selected from the group consisting of Fe, Mn, and Cu, and Cup is N-nitroso-N-phenyl hydroxylamine, into a coordinating surfactant, the injection being conducted at a temperature ranging from about 220 °C to about 350 °C, for a period of time sufficient to complete the ~~reaction~~ process.
16. (currently amended) A process for making surfactant capped nanocrystals of transition metal oxides which comprises injecting a solution of a metal cupferron complex of the formula $M^X\text{Cup}_x$, where x is a number between 1 and 4, and wherein M is selected from the group consisting of Fe, Mn, and Cu, and Cup is N-nitroso-N-phenyl hydroxylamine, into an amine based coordinating surfactant, the injection being conducted at a temperature ranging from about 150°C to about 400 °C, for a period of time sufficient to complete the ~~reaction~~ process.
17. (previously presented) The process of Claim 1 wherein the numerical value of X is 1.
18. (previously presented) The process of Claim 1 wherein the numerical value of X is 2.
19. (previously presented) The process of Claim 1 wherein the numerical value of X is 3.
20. (previously presented) The process of Claim 1 wherein the numerical value of X is 4.